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Utilizing Burnt-Out Lamp Bulbs

By H. Gernsback

HOW can we utilize burnt-out electric lamp bulbs? Almost everybody has several of these lying around idle. For the purpose of having the household as well as the experimenter make use of such discarded bulbs, the present article has been prepared.

We will pay until further notice monthly prizes as follows: **First prize—$3.00** *for best suggestion;* **Second prize—$2.00; Third prize—one year's subscription to the ELECTRICAL EXPERIMENTER.** *Every reader may join in this contest, and you need not be a subscriber to participate. Ideas will be publisht monthly under the head of* **"Burnt-out Lamp Contest."** *All letters should be addrest to "Editor,* Burnt-out Lamp Contest."

EVERYBODY who has electric light has, as a rule, a good many burnt-out lamp bulbs lying around idle which are not of any use, and sooner or later are discarded or perhaps thrown at nocturnal song makers on the fence, with indifferent results to the singer.

The thought of utilizing such bulbs had been a pet idea of the writer's for a long time, and the present article, and the ones we hope will follow, aim to save these old bulbs. The few ideas which we illustrate in the present article do not, of course, cover the whole subject. We are quite confident that there must be hundreds of other uses for the burnt-out bulbs, and we hope to present in our future issues further—and better—ideas of our ingenious readers.

The applications shown in Figs. 1, 2 and 3 are rather old, and are merely shown in this article to make it more complete. The other ideas were evolved by the writer and are supposedly new.

Fig. 1 shows how an excellent barometer, that will correctly predict changes of the weather, can be made from an ordinary lamp bulb. Take a burnt-out lamp, it matters not whether it is of the Tungsten or carbon variety, and place it in a basin of water, tip down. Now, by means of a heavy, sharp pair of scissors, cut off the glass tip, *while holding the lamp under water.* The use of pliers is not necessary, and the scissors will not be damaged by cutting glass under water. Be careful that when cutting off the tip not too much is cut off; *just a very little will do.* Immediately upon cutting the water will rush into the bulb with a violent boiling effect.

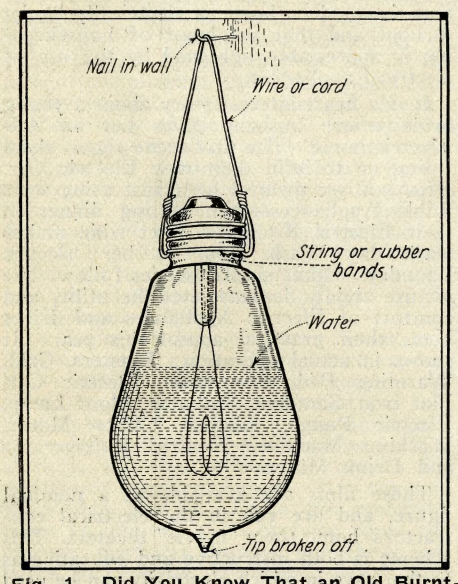

Fig. 1. Did You Know That an Old Burnt-out Lamp Bulb Makes an Excellent Weather Predictor? No? Here's How.

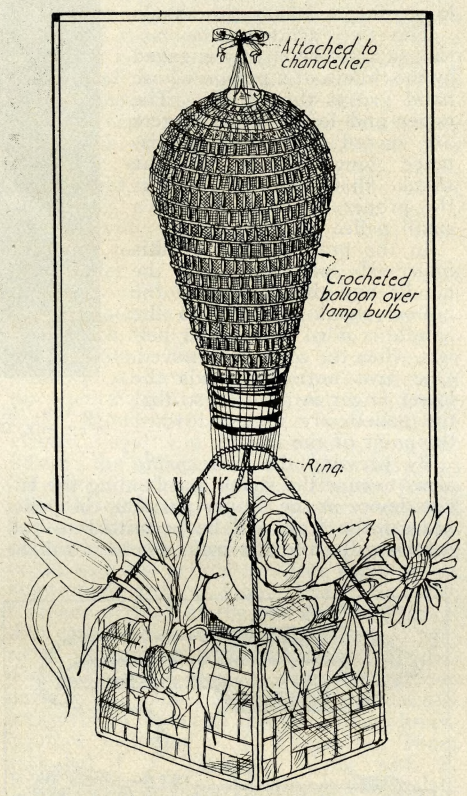

Fig. 2. Utilizing Burnt-out Bulbs and Utilizing Ma and Sis to Crochet Artistic "Balloons" for the Parlor Will Soon Be the Rage. Colors, of course, Red, White and Blue!

It takes but a few seconds to fill the bulb almost full. When taking the bulb from the water, contrary to expectation, the water will not flow from the small aperture at the former tip of the lamp. We now take the lamp and fasten a wire or cord around the screw part, so that the lamp is suspended tip downward (see illustration).

When the weather is fair for several days, no water will issue from the tip of the lamp. If, however, rainy weather impends, a drop of water will be observed at the tip, and it is quite surprising that a simple barometer of this kind will actually predict rain or fair weather twelve to twenty-four hours ahead of time. After a while, particularly, if there is much rainy weather, the bulb will become empty, as sometimes a few drops of water will come out of the bulb. This does not necessitate the throwing away of the bulb, and the writer has found a simple means for refilling it. Heat the bulb over a hot fire so that it becomes quite hot, then plunge into a pan of *hot* water, and the water will rush into the bulb filling it about three-quarters. Inasmuch as ordinary water is colorless, the writer suggests putting a coloring matter in the water before filling the bulb, which not alone makes the device more attractive, but at the same time makes it more easy to observe the tip when the water leaves it.

Our next illustration, Fig. 2, shows a simple device which you perhaps have seen already. This is something for the ladies, and particularly those who like to knit or crochet. An ordinary lamp bulb is decorated with red or other colored silk crochet work as illustrated, the idea being to form a balloon. Directly underneath the screw part of the bulb, an iron ring which may be a small key ring is located, which may be crocheted over. This ring is suspended from the bulb by means of silk threads as shown. The ring itself in turn supports the crochet basket or the car, which latter may be used to hold artificial or real flowers, as may be desired. Our illustration shows this accurately. At the top of the lamp a stout silk cord is sewn, and the whole may be attached to the chandelier in the parlor, or dining room lamp, giving a very pretty effect.

In illustration No. 3 is shown how the average experimenter can make small chemical vessels for experimental purposes, simply by using only the glass part of discarded lamp bulbs. One illustration shows a wooden block with wire work and handle on the style of soda fountain tumbler-holders, while the other illustration shows a similar idea, but here the holder is made of wire only. The lamp bulb may be cut by means of a three-cornered file, and it is safe to first break off the tip of the lamp to let the air in. This makes the cutting safer. The tip may afterwards be placed in a Bunsen burner to seal up the small hole which, of course, is necessary, otherwise liquids or acids would run out from

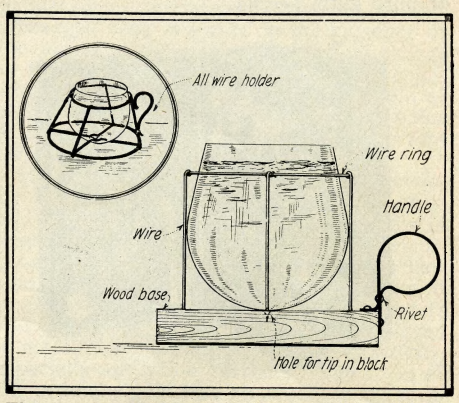

Fig. 3. No, Ma'am, This Is Not a Soda Water Glass. It's Used in Your Young Hopeful's Chemical Laboratory. Yes, It's Made from a Burnt-out Bulb.

the improvised chemical vessel. Another way to cut the lamp in case no file is had, is by taking a heavy string of cotton cord,

soaking it in alcohol and wrapping it two or three times around the point where the bulb is to be cut. Hold the bulb in the hand and light the cord with a match. After all of the alcohol has burnt out,

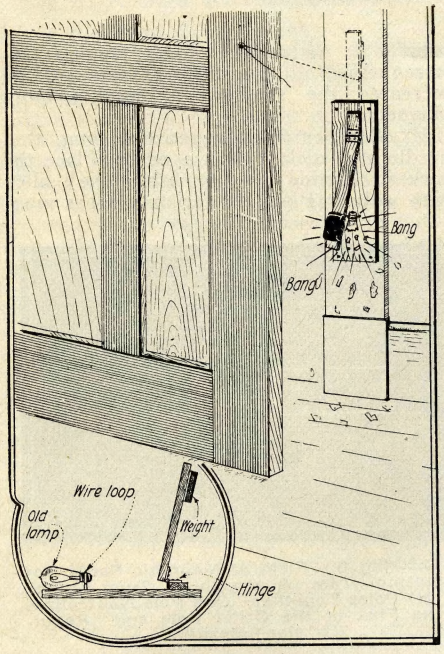

Fig. 4. Scaring "Burgulars" to a Quick Horrible Death by Means of an Old Burnt-out Lamp Bulb Is Not Such a Horrible Idea as It "Sounds."

dash a drop of water against the heated part where the cord was previously, and as a rule a clean cut will result.

Fig. 4 shows an improvised burglar alarm of the writer's, and it goes without saying that the very nature of this makes it impossible to use it more than once, but the writer guarantees that it will give a bad scare to any burglar who would attempt to open a door thus "protected." The idea simply consists of a board on which the lamp bulb is mounted by means of a wire loop. Of course, the bulb should still have its vacuum. Another piece of wood is secured by means of an ordinary hinge, and this piece of wood at the lower end is weighted by means of a piece of metal or stone or anything else that comes in handy. The entire outfit is now hung at the door frame while a thread is attached to the hinged part carrying the weight. It is apparent that as soon as the thread is broken, while opening the door, the weight will smash the bulb with a loud report. The thread itself is fastened by means of a special staple or tack to the door as shown in illustration. One or two feet of thread will do nicely. Of course, this alarm can be used again by putting another lamp in place.

Here is a medicated vaporizer or room fumigator that can be made by anyone at very little cost, Fig. 5. Take an ordinary lamp bulb and break off the tip, then cut off a small part at the top as shown. This you can do by means of a file or otherwise with a diamond. For that matter any glazier will do it for you for a few cents if you do not care to do it yourself. Break off all the filaments, leaving only the two lead wires exposed, as shown. Fill the bulb with either of the formulae as given below, all depending on the purpose for which you wish to use it. Fill the bulb as shown, and connect to your light supply. No resistance of any sort is required. Within a few seconds the water will begin to boil, while fumes will issue from the top of the bulb. Formula No. 1 has been prepared by a well-known physician and is excellent in case of colds, extensive coughing, cases of hooping cough, etc. Formula No. 2 will fumigate any room very quickly. The writer recommends both formulae. The beauty of this device is that *it works entirely automatic* for the simple reason that as soon as the liquid has evaporated below the level of the two lead wires, the current is turned off automatically, and no more fumes are generated. It is therefore entirely safe to leave this device run once it is started. It will stop at once as soon *as enough liquid has evaporated.*

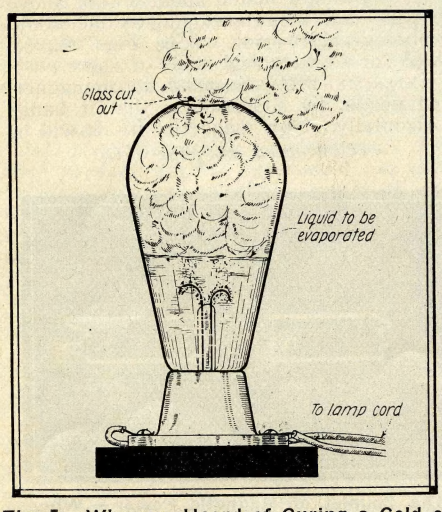

Fig. 5. Whoever Heard of Curing a Cold or Croup, or Disinfecting the House, With a Burnt-out Bulb? No, You Don't Eat the Bulb —But You Vaporize the Medicated Liquid!

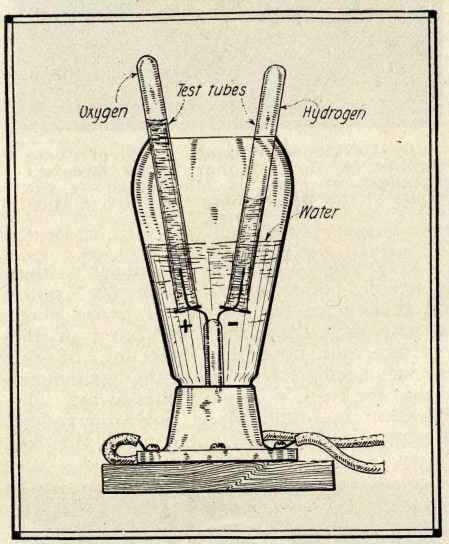

Fig. 6. This Shows How You Can Make at Practically No Cost a Very Efficient Apparatus for the Decomposition of Water—Electrolysis.

FORMULA No. 1.

For Colds, Coughs and Croup.

Oil of Eucalyptus..... 60 drops
Menthol ..... 60 grains
Tincture of Benzoin compound
(enough to make 2 ounces)

Of the above, use 1 teaspoonful floated upon water in vaporizer. Add a pinch of salt to make solution conductive.

FORMULA No. 2.

For Fumigating and Disinfecting.

Have druggist make a 40% solution of formaldehyde. Add a pinch of salt to make solution conductive. Use without diluting in vaporizer. This solution is excellent for killing flies and mosquitoes, and is to be operated in closed rooms without any people being in the room at the time of the fumigation.

Nearly every student wishes a cheap as well as good instrument to demonstrate electrolysis—decomposition of water. These instruments are more or less expensive in the market, and as a rule a student does not wish to bother by buying one of them, as they sell in the neighborhood of three to five dollars each. In Fig. 6 the writer has shown how one of these instruments can be made for practically nothing. All we require is a burnt-out electric lamp bulb. Any size will do. Proceed as explained in the preceding article of the vaporizer, as far as cutting off the top of the bulb is concerned. Leave the two lead wires exposed as shown. Fill the bulb with diluted sulfuric acid, five parts of water to one part of sulfuric acid. Over each one of the wires place a narrow diameter test tube, which test tube must be full of electrolyte, which can be done readily by filling them first, and while holding a finger over the open part insert in the bulb filled with the diluted acid. This will keep all the liquid in the test tubes, which is quite necessary. Both test tubes of course should be full. Now that everything is ready, connect the apparatus to a source of current, such as a six-volt storage battery or six good dry cells. It is understood that the bulb thus prepared is screwed in a porcelain receptacle as shown. As soon as the current is turned on you will see gas bubbles arise in each one of the test tubes, and you will observe that the gas accumulates twice as fast in one tube as in the other. The first tube, which contains the most gas, will con-

(*Continued on page* 859)

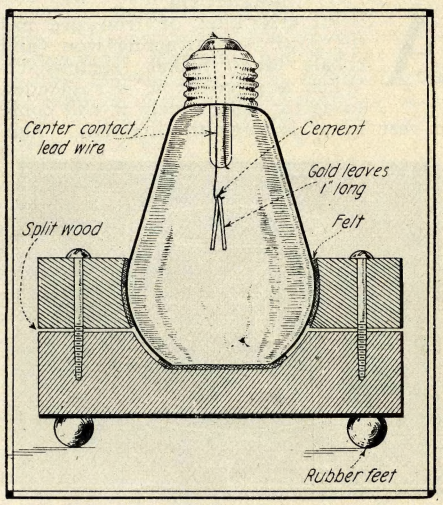

Fig. 7. A Student's Electroscope from an Old Burnt-out Lamp Bulb? Why Not? Very Simple if You Know How.

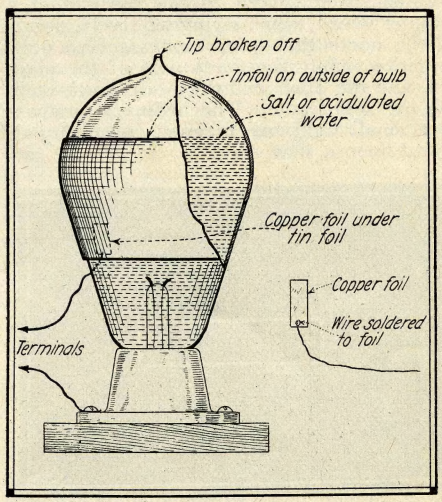

Fig. 8. Making an Efficient Condenser by Means of an Old Lamp Bulb is Quite a Simple Matter.

a night it must have been for him, but OH! what a night it WAS for me; well do I remember in trying to retreat from the razor strap with the phones still clamped tightly on my head. In my excitement I sat on the key with my right hand holding tightly on the spark gap reaching for the door with the left, at the same time busily engaged in studying the least path of resistance. Oh! yes, it is great to have been a pioneer; in fact it's the only way. It was only thru the *Modern Electrics* then, and the ELECTRICAL EXPERIMENTER NOW that got my start and which allowed me the above pleasures. Well, Bugs, I'll not keep you from your work any more, connect them in series or in parallel, I don't care, you know what you want. E. T. J.

UTILIZING BURNT-OUT LAMP BULBS.

(*Continued from page* 833)

tain pure hydrogen; the other, pure oxygen gas. The former is connected to the negative, the latter to the positive pole of the battery.

Nearly every experimenter wishes to possess a good electroscope. One can be readily made from a burnt-out lamp bulb as is shown in Fig. 7. Take an ordinary bulb and cut off the top as explained in the preceding articles. Leave one lead wire which *must* be the one going thru the central connection as shown in illustration. By means of a long pair of tweezers, bend this wire around to form a small hook. Now take a strip of gold leaf 2 inches long, ⅛ of an inch wide, and fold once. This gives us two strips joined at the center, each 1 inch long. (See illustration.) The writer, who has had quite a good deal of experience with gold leaf, has taken a peculiar dislike to the same, as it is nasty material to handle, adheres to the fingers and is a general nuisance all around. For some years past he has used a gold leaf substitute, which can be easily handled, and which works just as well if not better than gold leaf.* The substitute gold leaf can be readily fastened to the central lead wire, as, for instance, with a bit of thick shellac; or it may be simply hung loose; but we believe shellac to be the better method. Ordinary fish glue may also be used, and it proves quite satisfactory. In that case, simply apply a little of the glue by means of a wood splinter to the hooked lead wire. The gold leaf can then be hung on the little hook of the lead wire, and will adhere there readily. After all is finished, the bulb is secured to two wooden blocks as shown in the illustration, the lower block carrying a piece of felt to support the bulb, while the upper ring-like clamp simply holds the bulb in its upright position. Four pieces of felt may be placed between bulb and ring, so as not to crush the glass. Rubber feet at the bottom of the base complete the apparatus, which are quite necessary. If now, for instance, an ordinary rubber fountain pen be rubbed on the sleeve, thus electrifying it, and after it is brought near the metallic top of the lamp, the two gold leaves will diverge. The stronger the charge, the further the leaves will diverge. They can be made to diverge quite violently if an ordinary piece of blotting paper is taken and strongly rubbed over your knee. This strongly electrifies it, and the leaves will diverge violently; if they are long enough they will touch the wall of the bulb.

In the next idea is shown how the experimenter can make an efficient Leyden jar (condenser) by means of a discarded lamp bulb. Take a bulb and break off its tip under a solution of either strong salt water

*The Editor shall be pleased to supply the name of the manufacturer of this material upon receipt of stamped and self-addresed envelope.

or acidulated water, one part acid, four parts water. The solution will rush into the bulb as mentioned in the "barometer" experiment. It is, however, not necessary to quite fill the bulb. In other words, three-quarters full will be sufficient. As will be noted from the illustration, the two lead wires can remain after the filament has been broken off. Nothing further remains to be done except coating the outside of the bulb by means of tin foil which may be shellacked to the bulb. In order to make a good connection, our detail illustration shows how this can be accomplished. A piece of copper foil about 1 inch long and ¼ inch wide is soldered to a copper wire. This copper foil is shellacked against the glass of the bulb, and the tin foil is then wound around the bulb over the copper foil. No shellac should come between the copper foil and the tin foil. Otherwise a bad connection results. The tin foil should reach up as high as the solution goes, and should be on the level with the latter. It does not matter how far the tin foil reaches down, and this is up to the constructor. In our illustration we have only shown it three-quarters way down, but the tin foil could go still further down. Of course, in that case, the copper foil would be moved further down also.

In order to keep the wire from tearing out the tin foil, a stout rubber band may be slipt over the bulb (not shown in illustration). This rubber band will hold the wire in a satisfactory manner.